

USSR

UDC: 621.317.3

SHANTSEV, I. P.

"On Measuring the Factor of Coupling Between Two Tank Circuits"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 1 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 1), Novosibirsk, 1970, pp 66-67 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A348)

Translation: The author notes the comparative complexity of the method which is ordinarily used for determining the factor of coupling between two tank circuits (proportional to the product of their coupling coefficients and their Q's), where the excitation frequency is varied. A simpler method is proposed in which the resonance curve is plotted by varying one of the natural frequencies of the tanks while holding the excitation frequency constant. It is noted that this method is simple and can be used for any values of the factor of coupling and the Q's as well as in coupled systems of a different physical nature. Bibliography of two titles. E. L.

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1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--RNA SYNTHESIS IN RAT LIVER AND SPLEEN IN THE EARLY STAGES OF ACUTE
RADIATION INJURY -U-
AUTHOR-(04)-PASKEVICH, I.F., VASILYEVA, YE.S., TODOROV, I.N., SHANTYR,
V.I.
COUNTRY OF INFO--USSR
SOURCE--RADIOBIOLOGIYA 1970, 10117, 19-24
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--X RAY RADIATION BIOLOGIC EFFECT, RADIATION DOSAGE, RAT, RNA,
LIVER, SPLEEN, PHOSPHORUS ISOTOPE, CHEMICAL LABELLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0452

STEP NO--UR/0205/70/010/001/0019/0024

CIRC ACCESSION NO--AP0121126

UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121126

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RNA SYNTHESIS IN RAT LIVER AND SPLEEN WAS DETD. 2, 12, AND 24 HR AFTER WHOLE BODY X IRRADN. WITH A DOSE OF 800 R (197 KV, 10 MA, FILTER 0.5 MM CU PLUS 1 MM AL, FOCUS DISTANCE 40 CM, DOSE RATE 26.5 R-MIN). NA SUB2 H PRIME32 PD SUB4 WAS INJECTED INTO RATS 1 HR BEFORE KILLING THE ANIMALS. RNA WAS EXTD. FROM HOMOGENIZED LIVER AND SPLEEN BY A THERMAL PHENOL METHOD IN TEMP. INTERVALS OF 0-10DEGREES, 45-55DEGREES, 45-65DEGREES, AND 55-65DEGREES. THE RADIOACTIVITY OF RNA PREPNS. WAS MEASURED BY LIQ. SCINTILLATION TECHNIQUES. AN ACITVATION OF RNA BIOSYNTHESIS IN THE LIVER AND AN INHIBITION IN THE SPLEEN WERE OBSD. IN THE EARLY STAGES OF ACUTE RADIATION INJURY, ESP. 2 HR AFTER IRRADN.; A TENDENCY TO NORMALIZATION OCCURRED IN THE LATER TIME INTERVALS. FACILITY: NAUCH.-ISSLED. INST. MED. RADIOLOG., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 632.937.1

SHAPA, V. A., Director of the All-Union Scientific Research Institute for Biological Methods of Plant Protection

"With the Biological Method Into the Future"

Moscow, Zashchita Rasteniy, No 2, 1971, p 3

Abstract: Development of biological and other nonchemical methods to protect agricultural crops against pests, diseases, and contaminants, coordination of plans to apply such methods, and the solution of problems arising from the massive use of sterilization, attractants, and hormone preparations are some of the missions to which the All-Union Scientific Research Institute for Biological Methods of Plant Protection is devoted. Some 65 research associates and 130 technicians, laboratory assistants, and other personnel cooperate at the Institute and its laboratories. Research is done in the following areas: developing methods for enriching fertile soils with useful entomofauna; use of separating zones, entobacterin, and selective pesticides; significance of nectar-bearing plants in the attraction of entomophages, as well as the use of entomophages in a protection system against saw flies, lesser appleworm, aphids, and scale insects. Other areas of research include: development of

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SHAPA, V. A., Zashchita Rasteniy, No 2, 1971, p 3

biopreparations against the American white butterfly and other pests;
investigation of sterilants, attractants, repellants, and hormone preparations for use in orchards, for instance.

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USSR

MAMATKANOV, D. M., SHAPAR, A. K.

"Mathematical Models of Probabilistic Description and Prediction of Daily Schedules of Power Supply System Loads"

Primeneniye Metodov Statistiki i Mat. Modelir. v Energ. Raschetakh [Use of Methods of Statistics and Mathematical Modeling in Power System Calculations -- Collection of Works], Frunze, Ilim Press, 1973, pp 101-138 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V201)

Translation: A method is suggested for probabilistic description and short-term prediction of the loads on an electric power system based on the continuous periodicity and stochastic nature of the process of its formation. The results of prediction are represented in the form of arbitrary distribution functions considering the peculiarities of fluctuations during the day, the type and position of days in the annual cross section. Methods are presented for using the models suggested in practical problems and calculations are presented based on the Frunze power system.

Author's view

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UDC 616.21-057:797.22

SHAPARENKO, B. A., GULER, S. A., ZHURBA, A. N., and URKIN, A. A., Chair of Otorhinolaryngology, Donetsk Medical Institute, and Donetsk Department, Central Experimental Design Bureau for Special Equipment

"Functional State of the Otorhinolaryngological Organs in Aquanauts and Scuba Divers During the 'Ikhtandr 68' Underwater Experiment"

Moscow, Vestnik Otorinolaringologii, No 6, Nov/Dec 70, p 93

Translation: Examination of the condition of the ear, nose, and throat of four aquanauts (group 1) and 13 scuba divers (group 2) who remained under water at a depth of 13 to 15 m for a long time under conditions of high pressure (2.2 atm), high humidity (92 to 96%), and decreases in temperature revealed that during the first 24 hours the first group of subjects had a "full and stuffy" feeling in the ears. No objective changes were noted in the otorhinolaryngological organs. On the next day they developed swelling and hyperemia of the mucosa of the upper respiratory tract, retraction and cloudiness of the tympanic membranes, and lowering of the barofunction of the middle ear to the second degree. On the 3rd day they exhibited signs of infiltration of the mucosa and lymphoid tissue of the respiratory tract, hyperemia of the tympanic membranes, hoarseness, and closure of the vocal

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SHAPARENKO, B. A., et al, Vestnik Otorinolaringologii, No 6, Nov/Dec 70, p 93

chords. On the 4th day all members of the underwater laboratory showed inflammatory changes in the mucosa and lymphoid tissue of the upper respiratory tract, infiltration of Gerlach's tonsils, and early indications of eustachitis.

During their stay under water, the 13 scuba divers (group 2) experienced the same changes in the otorhinolaryngological organs as those in group 1. The changes were indistinct, and their condition returned to normal within 2 days after the men left the water. Increased time under water resulted in the development of incipient signs of catarrhal inflammation of the organs studied.

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USSR

UDC 626.024:616.21-008

SHAPARENKO, B. A., GULYAR, S. A., ZHURBA, A. N., and UTKIN, A. A., Otorhinolaryngology Department, Donetsk Medical Institute, and Medical Physiology Division, Donetsk Department, Central Experimental Design Bureau for Special Equipment

"Dynamics of Functional Shifts in the Otorhinolaryngological Organs of Scuba Divers"

Kiev, Zhurnal Ushnykh, Nosovykh, i Gorlovykh Boleznay, No 4, Jul/Aug 70, pp 79-82

Abstract: Thirteen scuba divers working at a depth of 13 to 15 meters (water temperature 17 to 21°C) were examined at 30-min intervals for 3 hours. The data obtained revealed functional shifts in the ear, nose, and throat which varied according to certain external factors. A lowering of the ambient temperature caused temporary constriction and then dilatation of the blood vessels in the nasal mucosa and lymphoid tissue of the nasopharynx. Increased secretion of the mucous glands and impaired nasal breathing resulted in obstruction of the eustachian tubes and deterioration of hearing. These shifts were less pronounced in a control group of eight scuba divers who wore a "Sadko" water suit made of thin rubber with a wool lining.

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USSR

UDC: 623.962.396

VARENTSOV, B. A., KRASYUK, N. P., TUPITSYN, L. A., SHAPERIN, I. L.

"Experimental Studies of the Radar Characteristics of Objects by the Method of Hydroacoustic Modeling"

Tr. Sev.-Zap. zaoch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 13-15 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12G33 [résumé])

Translation: The paper describes an equipment complex for studying the radar characteristics of different objects by methods of hydroacoustic modeling. The measurement procedure is given.

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USSR

UDC: 621.396.96:621.391.837.1

VERENTSOV, B. A., KRASYUK, N. P., TUPITSYN, L. A., SHAPERIN, I. L.

"Defining Characteristics for Radar Recognition of Objects"

Tr. Sev.-Zap. zaoch. politekhn. in-t (Works of the Northwest Polytechnical Correspondence Institute), 1972, No 20, pp 5-8 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 1268 [résumé])

Translation: The authors examine selection of optimum parameters of a radar signal reflected from a target, where these parameters are typical characteristics of an observed class of objects. It is shown that there is an optimum duration for the probe signal which depends on the structure of the object. Data are given from corresponding experiments.

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USSR

UDC 615.28:547.337.3

SHAPILOV, O. D., RACHINSKIY, F. YU., OSIPYAN, V. T., DEKEL-BAUM, A. B., POTANENKO, T. G., KRIVENINA, A. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"Hexamethyleneimmonium Compounds Containing Alkoxy-, Hydroxy- and Cyanoalkyl Substituents at the Quaternary Nitrogen Atom, and Their Bactericidal Properties"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, No 2, Feb 71, Vol 5, pp 19-22

Abstract: Hexamethyleneimmonium compounds with alkyl, carb-alkoxymethyl, phenoxyethyl and other substituents with 17 to 21 carbon atoms at the N exhibit marked bactericidal action; ammonium compounds with alkoxymethyl groups at the quaternary nitrogen atom are both good bactericides and highly water-soluble.

The author obtained a number of hexamethylinonium compounds by alkylation of tertiary derivatives of hexamethylenimine, and also some highly water-soluble compounds through synthesis of substances 1/2

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SHAPILOV, O. D., et al, Khimiko-Farmatsevticheskiy Zhurnal,
No 2, Feb 71, Vol 5, pp 19-22

with cyanoethyl and cyanomethyl groups at the quaternary nitrogen atom. Thirty-six compounds in all were studied for bactericidal and other properties.

Some 30 of these were quite effective against E. coli and Staphylococcus aureus, and were moderately or highly water-soluble. Physical and bactericidal properties are given in the paper.

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USSR

UDC 6161.9-085.7:546.272.1

SHAPILOV, O. D., RACHINSKIY, F. Yu., DELEL'BAUM, A. B., OSIPYAN, V. T.,
and KRUPENINA, A. A.

"Derivatives of Diethyl Ether Containing Phenoxy- and Hexamethyleneimonium
Groups, as Bactericides"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLIV, No 1, Jan 71, pp 223-226

Abstract: Some quite effective bactericides among hexamethylamineimonium
compounds have already been discovered (1968, 1970).

Of the subgroup mentioned above, 18 compounds were synthesized and tested
for bactericidal action (Staphylococcus aureus).

Of these 18, the bromide of the [β -(2,4-dichlorophenoxy)- β' -(N-decylhexa-
methylenimonium)] derivative of diethyl ether was found to be the most
promising. Physical constants of the 18 compounds and details of the
synthesis are included in the paper.

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1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--A NEW METHOD OF STERILIZING SURGICAL GLOVES -U-
AUTHOR--(04)-OSIPYAN, V.T., GRAMENITSKAYA, V.G., SHAPILOV, O.D., SAVINSKIY,
YA.R.
COUNTRY OF INFO--USSR
SOURCE--VOEYNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 77-78
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--SURGICAL EQUIPMENT, MILITARY HOSPITAL, MERCURY COMPOUND,
CHLORIDE, STERILIZATION, BACTERICIDE, BACILLUS ANTHRACIS, BACILLUS
SUBTILIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0694 STEP NO--UR/0177/70/000/003/0077/0078
CIRC ACCESSION NO--AP0134433
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 027

CIRC ACCESSION NO--AP0134433

ABSTRACT/EXTRACT--(U) GP-U-

ABSTRACT. THE METHODS OF STERILIZATION OF SURGICAL GLOVES NOW USED IN MEDICAL INSTITUTIONS OF THE ARMY AND NAVY (AUTOCLAVING, BOILING, AND WETTING IN MERCURIC CHLORIDE SOLUTION, ETC) HAVE SUBSTANTIAL SHORTCOMINGS. THIS LED US TO SEEK OTHER, MORE EFFECTIVE METHODS OF STERILIZATION. IN THE COURSE OF 1967-1968 WE CONDUCTED INVESTIGATIONS TO DETERMINE THE POSSIBILITY OF USING FRO THE STERILIZATION OF SURGICAL GLOVES CERTAIN HYDROPEROXIDE PRESCRIPTIONS BASED ON ALKALIZING OR ACYLATING AGENTS. STUDY OF THE MICROBICIDAL AND DISINFECTING ACTION OF PRESCRIPTIONS CONTAINING HYDROGEN PEROXIDE AND ONE OF THE ACYLATING AGENTS (ACETIC ANHYDRIDE, MONOCHLOROACETIC, FORMIC, BENZOIC, ACETIC, PROPIONIC AND OTHER ACIDS) SHOWED THAT IN ITS COMPLEX OF PROPERTIES THE MOST RATIONAL IS A SYSTEM CONTAINING 30PERCENT PERHYDROL AND FORMIC ACID SOLUTION, CALLED PREPARATION 2-4 BY US. THE PERFORMIC ACID FORMING AS A RESULT OF THE REACTION OF THOSE COMPONENTS HAS A LETHAL EFFECT ON MICROBES. SOLUTIONS OF PREPARATION S-4 (2.4-4.8PERCENT) HAVE A BROAD SPECTRUM OF BACTERICIDAL ACTION AND ASSURE THE DEATH OF SPORES OF BAC. ANTHRACIS, BAC. ANTHRACIDIS AND BAC. SUBTILIS IN THE FIRST FIVE OR TEN MINUTES.

UNCLASSIFIED

1/3 015 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SYNTHESIS AND STUDY OF HEXAMETHYLENIMMONIUM COMPOUNDS AS BACTERIDES
-U-
AUTHOR-(04)-SHAPILOV, O.D., MAMEDOV, F.N., POTAPENKO, T.G., OSIPYAN, V.T.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(1), 131-5
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BACTERICIDE, PHENOL, ORGANIC SULPHUR COMPOUND, AMMONIUM
COMPOUND, ALKYL RADICAL, HALIDE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/0407 STEP NO--UR/0080/70/043/001/0131/0135
CIRC ACCESSION NO--AP0100890
UNCLASSIFIED

2/3 015

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PASSING DRY HCL INTO 71.5 G N (2 HYDROXYETHYL)HEXAMETHYLENIMINE IN CSUB6HSUB6. ADD ING 71.4 G SOCLSUB2, AND HEATING 1 HR AT 40DEGREES GAVE 70PERCENT SOLID N (2 CHLOROETHYL)HEXAMETHYLENIMINE HCL, THIS WITH ALKALI GAVE THE LIQ. FREE BASE, WHICH HEATED, OR TREATED WITH HSUB2O OR ALCS., WAS CONVERTED INTO A SOLID CONTG. IONIC CL. THE AMINE (26G) HEATED IN ETSUBO 6 HR WITH THE REACTION PRODUCT OF 21.5G. RHO MESUB3CCSUB6HSUB4SH AND 3 G K GAVE 50PERCENT RCSUB6HSUB4SCHSUB2CHSUB2NRSUB2 (NRSUB2 EQUALS HEXAMETHYLENIMINO) R EQUALS RHO MESUB3C, BSUB2 172-6DEGREES, SIMILARLY WAS PREPD. THE ANALOG WITH R EQUALS RHO ME, BSUB2 158-64DEGREES. SIMILAR REACTION WITH RHO-ETCSUB6HSUB4SCHSUB2CHSUB2 ONA GAVE 50PERCENT UNDISTO. RHO-ETCSUB6HSUB4SCHSUB2CHSUB2OCHSUB2CHSUB2NRSUB2, SIMILARLY WERE PREPD. RHO-MECSUB6HSUB4SCHSUB2CHSUB2OCHSUB2CHSUB2NRSUB2, 45PERCENT, BSUB1 140-5DEGREES, AND RHO-MEPRCH ANALOG, BSUB1 164-7DEGREES, NPRIME2OSUBD 1.3454.

UNCLASSIFIED

3/3 015 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0100890
ABSTRACT/EXTRACT--TREATING THE APPROPRIATE AMINES WITH ALKYL HALIDES GAVE
THE FOLLOWING QUATERNARY SALTS:
(RHO-RCSUB6HSUB4SCHSUB2CHSUB2NRSUB2RPRIME1) PLUSXMINUS (NRSUB2 EQUALS
HEXAMETHYLENIMINO) (R, RPRIME1, AND X SHOWN): ME, CSUB7HSUB15, BR, ME,
CSUB10HSUB21, BR, ME, CHSUB2COSUB2CSUB7HSUB15, CL, ME,
CHSUB2COSUB2CSUB10HSUB21, CL, MESUB36, CSUB6HSUB13, BR, MESUB3C,
CSUB7HSUB15, BR, MESUB3C, PHCNSUB2, CL, THE FOLLOWING
RHO-RCSUB6HSUB4SCHSUB2CHSUB2CHSUB2NRSUB2RPRIME1 PLUSXMINUS: ME,
CSUB7HSUB15, BR, ME, CSUB10HSUB21, BR, ME, CHSUB3COSUB2CSUB10HSUB21, CL,
ME, CLSUB12HSUB25, BR, ET, CSUB7HSUB15, BR, ET, CSUB10HSUB21, BR,
MEPRCH, CSUB5HSUB4, BR, MEPRCH, CSUB6HSUB13, BR, MEPRCH, PHCHSUB2, CL,
MEPRCH, CSUB7HSUB15, BR, MEPRCH, CSUB8HSUB17, BR, MEPRCH, CSUB10HSUB21,
BR, AND MEPRCH, CHSUB2COSUB2 CSUB7HSUB15, CL. BACTERICIDAL TEST DATA
WERE TABULATED, THEY WERE RELATIVELY NONTOXIC TO ANIMALS AND RATHER
ACTIVE AGAINST MICROORGANISMS, AND MOST ACTIVE WERE THE MEMBERS WITH
DECYL SUBSTITUENTS.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--EFFECT OF ZIRCONIUM TANNING ON THE WELDING TEMPERATURE AND THE
ACIDITY OF LEATHERS -U-
AUTHOR--BABICH, I.YA, SHAPILSKAYA, A.YA
COUNTRY OF INFO--USSR
SOURCE--KOZH., OBUV. PROM. 1970, 12(1) 26-9
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ZIRCONIUM COMPOUND, TANNING MATERIAL, LEATHER, CHROMIUM
COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0188 STEP NO--UR/0498/70/012/001/0026/0029
CIRC ACCESSION NO--AP0106844

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEATHER TANNED WITH NA SULFATE ZIRCONATE, USING 6PERCENT ZRO SUB2 BY THE WT. OF HIDES, AND A "WELDING TEMP." (A MEASURE OF THE CHEM. AFFINITY OF THE TANNING AGENT TO COLLAGEN) HIGHER THAN THAT OF LEATHER FROM CHROME, SYNTAN, CHROME SYNTAN, OR CHROME VEGETABLE TANNING. THE HCL CAPACITY WAS DETD. ON ACETONE DRIED RAW HIDES AND ON HIDES AFTER PROLONGED SOAKING IN AN INCREASING CONCN. OF TANNING AGENTS, ZR SALTS, OAK EXT., AND SYNTAN SPS. APPROX. THE SAME DECREASE OF ACID CAPACITY WITH INCREASING AMT. OF TANNING AGENT WAS OBTAINED IN ALL CASES, REACHING A VALUE OF 0.40 MEQUIV-G AT 35PERCENT ZRO SUB2 ON 1 G PROTEIN. LINKING OF PROTEIN STRUCTURE WITH ZR SALTS WAS SIMILAR TO THAT WITH VEGETABLE TANNING AGENTS, BEING ANIONIC IN CHARACTER, AND REACTION OCCURRING THROUGH THE AMINO GROUPS OF COLLAGEN TO FORM BRIDGES BETWEEN ADJACENT PROTEIN CHAINS BY ELECTROVALENCE FORCES, WHICH LATE CHANGED TO H BONDS.

UNCLASSIFIED

USSR

UDC: 8.74

SHAPINSKIY, Yu. Ya.

"A Method of Calculating the Average Length of Propagation of Carries"

V sb. Raboty po tekhn. kibernet. (Works of Technical Cybernetics), vyp. 4, Moscow, Computing Center of the Academy of Sciences of the USSR, 1971, pp 41-70 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V494).

Translation: A generalized method is proposed for calculating the average length of propagation of carries and the distribution function of maximum propagation lengths for any number of digital places regardless of the specific circuit of the adder. The method is equivalent to complete sorting of all possible combinations but does not reduce to complete sorting.
O. Belkin.

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USSR

UDC: 8.74

SHAPINSKIY, Yu. Ya.

"Shortening the Time of Addition of Binary Codes"

V sb. Raboty po tekhn. kibernet. (Papers on Technical Cybernetics--
collection of works), vyp. 4, Moscow, Computing Center of the Academy of
Sciences of the USSR, 1971, pp 30-40 (from RZh-Kibernetika, No 4, Apr 72,
Abstract No 4V521)

Translation: The author considers the possibility of shortening the time
of summation by reducing the time required for propagation of carries.

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SURFACE HARDENING OF MALLEABLE CAST IRON -U-
AUTHOR-(03)-SHAPIRO, A.A., FROLOV, S.F., DANILINA, V.S.
COUNTRY OF INFO--USSR
SOURCE--LITEINOE PROIZVOD. 1970, (1), 36-7
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CAST IRON, SURFACE HARDENING, ALLOY COMPOSITION, FATIGUE
STRENGTH
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1741 STEP NO--UR/0128/70/000/001/0036/0037
CIRC ACCESSION NO--AP0110719
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TITLE SPECIMENS FROM 3 INDUSTRIAL
MELTS (C 2.77-2.88, SI 1.07-1.37, MN 0.45-0.60, S 1.48-1.89, P
0.21-0.25, CR 0.06, AND NI 0.10-0.12 WT. PERCENT) WERE HARDENED ON THE
SURFACE BY MEANS OF A HIGH FREQUENCY CURRENT. ALL SPECIMENS HAD
INTERNAL TANGENTIAL COMPRESSION STRESSES AT 0.6-0.8 MM FROM THE SURFACE
WITH THE MAX. AT THE SURFACE OF 22-5 KG-MM PRIME2. THESE STRESSES
INCREASED THE ULTIMATE FATIGUE STRENGTH. WITH INCREASED AMT. OF FERRITE
IN THE MATRIX (20-50 AND UP TO 100PERCENT) THE ULTIMATE FATIGUE STRENGTH
INCREASED BY 20-35 AND UP TO 40PERCENT, RESP. THE INCREASED HOLDING
TIME DURING NORMALIZING HAD THE FOLLOWING EFFECT: AFTER 15 MIN THE
ULTIMATE FATIGUE STRENGTH INCREASED BY 48 PERCENT, AFTER 25 MIN, IT
INCREASED BY 57PERCENT. THE OPTIMAL HEAT TREATMENT CONDITIONS WERE HIGH
FREQUENCY CURRENT HARDENING WITH TEMPERING AT 300DEGREES.

UNCLASSIFIED

Organophosphorous Compounds

USSR

UDC 543.51+661.718.1

SHAPIRO, A. B., KROPACHEVA, A. A., SUSKINA, V. I., ROZYNOV, B. V., and ROZANISEV, E. G., Institute of Chemical Physics, Academy of Sciences USSR, and All-Union Institute of Pharmaceutical Chemistry imeni S. Ordzhonikidze

"Mass Spectrometric Study of Ethylenephosphoramide Paramagnetic Derivative"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 71, pp 864-867

Abstract: The authors synthesized previously unknown paramagnetic derivatives of 2,2,5,5-tetramethylpyrrolidine-1-oxyl-3-amido- and 2,2,6,6-tetramethylpiperidine-1-oxyl-4-amidodiethyleneimidothiophosphoric acid and made a mass spectrometric study of their fragmentation by electron impact. A mechanism is suggested for the decay of molecular ions of ethylenephosphoramide paramagnetic derivatives.

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1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--SYNTHESIS AND EPR SPECTRA OF SOME NEW IMINOXY BIRADICALS -U-
AUTHOR--(04)-SHAPIRO, A.B., SUSKINA, V.I., FEDOROVA, V.V., RIZANTSEV, E.G.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 694-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--EPR SPECTRUM, MOLECULAR STRUCTURE, ORGANIC SULFUR COMPOUND,
IMINE, FREE RADICAL, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/1777 STEP NO--UR/0062/70/000/003/0694/0696
CIRC ACCESSION NO--AP0123574
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. HEATING SUCH SUB2) SUB2 CO SUB2 H) SUB2 IN C SUB6 H SUB6 WITH SOCL SUB2 4 HR GAVE THE ACYL DICHLORIDE, WHICH, FREED OF THE SOLVENT AND RESIDUAL SOCL SUB2 IN VACUO, AND 2,2,6,6-TETRAMETHYL,4-HYDROXYPIPERIDINEOXY RADICAL GAVE AFTER REACTION IN C SUB6 H SUB6 IN THE PRESENCE OF ET SUB3 N 12 HR AT ROOM TEMP. 62PERCENT I (N EQUALS 2), M. 60.5-1.5DEGREES. SIMILARLY WERE PREPD. I (N EQUALS 4), M. 71-2DEGREES, 73.8PERCENT; I (N EQUALS 6), 50PERCENT, OIL; AND I (N EQUALS 10), OIL, 48PERCENT. EPR SPECTRA WERE GIVEN AND DISCUSSED. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

KULIKOV, A. V., LIKHTENSHTEYN, G. I., ROZANTSEV, E. G., SUSKINA, V. I., and SHAPIRO, A. B.

"Possibility of Determining the Distance Between Functional Protein Groups by the Spin-Label Method"

Moscow, Biofizika, No 1, 1972, pp 42-48

Abstract: A set of iminoxyl polyradicals with a known structure was used to analyze the possibility of determining the relative position of the spins of iminoxyl fragments from the shape and second moment of the ESR spectra of spin-labeled proteins (egg lysozyme, sperm whale myoglobin, and rabbit muscle myosin) at $T = 77^\circ \text{K}$. The ESR spectra were found to be sensitive to the distance between spins if it did not exceed 17 to 18 Å. (The method of second moments can be used to estimate the distance between iminoxyl fragments in the 8 to 16 Å interval). The spin-label method was used to estimate the distance between the functional groups in lysozyme (histidine and lysine groups), myoglobin (histidine groups), and myosin (sulfhydryl groups). The results in the case of lysozyme and myoglobin were consistent with the X-ray diffraction models of these proteins.

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USSR

BINYUKOV, V. I., et al., Biokhimiya, Vol 36, No 6, Nov/Dec 71, pp 1149-1155

temperatures suggest that high temperature induces conformational transformations in the protein fraction, and these induce structural transformations in the lipid fraction of bacterial membranes.

USSR

UDC 669.15:548

BELOZERSKIY, G. N., GRINBLAT, Yu. N., and SHAPIRO, A. I., Leningrad State University imeni A. A. Zhdanov

"A Study of the YuNDK24 Alloy by the Nuclear Gamma Resonance Method"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 410-412

Abstract: A study was made by the method of nuclear gamma resonance (NGR) of the condition of Fe atoms of the YuNDK24 alloy in various stages of thermomechanical treatment (TMT) and at various durations of tempering. The NGR spectra of seven specimens were taken on a spectrometer providing uniformly accelerated motion. The types of TMT and the Moessbauer parameters of NGR spectra and the magnetic properties of the investigated specimens are discussed by reference to tabulated data. The NGR spectra of two specimens were found to represent a superposition of two spectra with different Moessbauer parameters. Two tables, three bibliographic references.

1/1

- 112 -

USSR

ALEKSEYEV, A. M., VOLKONSIY, V. A., SHAPIRO, A. D.

"Methods of Optimization of Plans by Automatic Formation of Plan Versions and Their Applications"

Ekonomika i Mat. Metody [Economics and Mathematical Methods], 1973, Vol 9, No 1, pp 3-18 (Translated from *Referativnyy Zhurnal Kibernetika*, No 6, 1973, Abstract No 6V539, by Yu. Finkel'shteyn).

Translation: Versions of a problem of the following form are studied:

$$\sum_{k=1}^K \sum_{j=1}^{J_k} c_{kj}^k x_j^k \rightarrow \min, \quad (1)$$

$$\sum_{k=1}^K \sum_{j=1}^{J_k} a_{ji}^k x_j^k \geq b_i, \quad i=1, \dots, I, \quad (2)$$

$$\sum_{j=1}^{J_k} x_j^k = 1, \quad k=1, \dots, K, \quad (3)$$

$$x_j^k \geq 0, \quad j=1, \dots, J_k, \quad k=1, \dots, K, \quad (4)$$

$$x_j^k = 0 \text{ or } 1, \quad j=1, \dots, J_k, \quad k=1, \dots, K_1 (K_1 \leq K). \quad (5)$$

USSR

Alekseyev, A. M., Volkonsiy, V. A., Shapiro, A. D., *Ekonomika i Mat. Metody*, 1973, Vol 9, No 1, pp 3-18.

Most frequently, model (1)-(5) is used for planning or production of a group of enterprises or branches, both selection of versions of development of production and for the production program. Recently, formalizations such as (1)-(5) have begun to be applied also to path determination problems.

Calculations using a model make it possible to select the optimal combination of versions. Formation of the file of initial data is usually done manually, sharply limiting the number of versions which can be practically tested. The advantages and disadvantages of multiple-version and "version-less" statements of the problem are discussed. In the opinion of the authors, the multiple-version problem should be given the task of determining inter-relationships between objects, while models of individual objects (perhaps of significantly more complex structure) should be used to formulate version in the multiple-version model. The greatest experience in automatic formulation of versions has been accumulated for the case of the linear model -- the tradition here extends back to the Danzig-Wolf decomposition algorithm.

As concerns the solution of the multiple-version problem itself, particular attention is given to the use of estimates in the problem, including integer variables. The methods of utilization of estimates described yield

USSR

Alekseyev, A. M., Volkonsiy, V. A., Shapiro, A. D., *Ekonomika i Mat. Metody*, 1973, Vol 9, No 1, pp 3-18.

the best results as applied to partially integer problems. The results of solution of a number of practical problems are described briefly: 1) optimal development of the mining fund of the southern Kuznets basin, 2) optimal placement of mobile wood cutting units for cutting of the forest in the flooding zone of the Boguchanskaya Hydroelectric Power Plant, 3) optimal development and placement of permanent and temporary repair basis for railroad machine stations, 4) optimization of the plan for creation of a territorial production complex, matched to the plan of development of a construction base. 30 biblio. refs.

3/3

1/2 016 UNCLASSIFIED PROCESSING DATE--020CT70
TITLE--RHODAMINE DYES AND RELATED COMPOUNDS. XVIII. N,N
PRIME, DIALKYLRHODAMINES WITH LONG CHAIN HYDROCARBON RADICALS -U-
AUTHOR--(02)-IOFFE, I.S., SHAPIRO, A.L.
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(2), 369-71
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--DYE, AMINE DERIVATIVE, MOLECULAR STRUCTURE, HETEROCYCLIC
OXYGEN COMPOUND, OPTIC PROPERT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1993/0215 STEP NO--UR/0365/70/006/002/0369/0371
CIRC ACCESSION NO--AP0113154
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0113154

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONDENSATION OF I (X EQUAL CL) WITH KMH SUB2 (R EQUAL C SUB6 H SUB13, C SUB8 H SUB17, C SUB16 H SUB33, OR C SUB18 H SUB37) GAVE THE TITLE DYES (I, X EQUAL NHR) (II). THE PRESENCE OF ALKYL GROUPS IN II DID NOT CHANGE THEIR COLOR IN COMPARISON WITH II (R EQUAL H); ALL II ABSORBED STRONGLY AT 523-6 NM. HOWEVER, LONG ALKYL CHAINS ALTERED THE HYDROPHOBIC PROPERTIES OF II AS SHOWN BY THE CHANGE OF THEIR PARTITION COEFFS. IN OIL ALC. OR KEROSENE ALC. SYSTEMS WITH THE LENGTH OF R CHAIN.

UNCLASSIFIED

Acc. Nr.

AA0031862

Abstracting Service:
CHEMICAL ABST. 9-70

Ref. Code

UK 0000

54729z Alkylene glycols. Levin, S. Z.; Shapiro, A. L.
(All-Union Scientific-Research Institute of Petroleum Processing)
Brit. 1,177,877 (Cl. C 07c), 14 Jan 1970, Appl. 26 Aug 1968;
6 pp. Ethylene, propylene, and 1,2-hexylene glycols were
prepd. in $\geq 97\%$ yields by hydrating the corresponding alkylene
oxides with 1.1-1.3 equivs. of H_2O at $80-220^\circ/20-180$ atm. in
the presence of CO_2 ; a quaternary salt ($Me_4N^+I^-$, $Et_4N^+I^-$,
 $Pr_4N^+Br^-$, Et_4N^+HI , $PrNH_4HI$, or $Et_4NH.HCl$) or KBr , NaI ,
 $LiBr$, KI , or $NaBr$; and, optionally, 0.1-2% (based on the
alkylene oxide) $NaHCO_3$, Na_2CO_3 , or $KHCO_3$. For example,
ethylene oxide 180, H_2O 74, $Me_4N^+I^-$ 2, and $NaHCO_3$ 1 g were
mixed; CO_2 was added until the pressure was 30 atm, the mixt.
was heated to 100° and then gradually to 200° so that the pres-
sure rose to a max. of 140 atm to give 237 g ethylene glycol and 7
g diethylene glycol. The other glycols were prepd. similarly,
or, alternatively, the metal halide or the quaternary ammonium
compd. was prepd. in situ; e.g. $Pr_4N^+Br^-$ was prepd. from
 Pr_4N and $PrBr$. HCPN 1

REEL/FRAME

19692010

Pharmacology and Toxicology

USSR

UDC 591.477.4

CHECHULIN, A. S., SHAPIRO, A. M., VAL'TSEVA, I. A., and TALYZIN, F. F., First Moscow Medical Institute im. I. M. Sechenov

"Some Data on the Effect of Central Asian Cobra Venom on Blood"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 7, 1972, pp 58-59

Abstract: Examination of the peripheral blood of animals 20 to 40 min after subcutaneous injection of sublethal doses of Central Asian cobra venom revealed an increase in the number of leukocytes, reticulocytes, and especially immature forms of erythrocytes. However, the resistance of the erythrocytes was unaffected. This suggests that hemolysis did not occur under experimental conditions, for the permeability of the membrane of these cells did not increase in response to the neurotropic toxin.

1/1

USSR

UDC 621.318.5

Engineers DENISOV, A.G., ZINAKOV, V.K., SHAPIRO, A.M.

"Certain Problems Of Application Of Magneto-Controlled Sealed Contacts"

Moscow, Pribory i sistemy upravleniya, No 11, Nov 1971, pp 18-20

Abstract: The paper lists various applications of magneto-controlled sealed contacts (MC) which include signaling and protection circuits, telephone switching apparatus, computers, and domestic equipment such as refrigerators. Various spark-quenching circuits used to increase the lifetime of MC are discussed; the circuits are based on the use of RC elements, semiconductor diodes, semiconductor variable resistances (varistors), and silicon stabilitrons. MC are often used in conjunction with low-power transistors and integral circuits; the peculiarities are discussed of MC which appear in a regime of switching very small voltages and currents and which must be considered in planning such apparatus. It is concluded that MC are extremely promising switching elements and a rapid increase of their output and an expansion of their sphere of application must be expected in the coming years. Progress in this field will considerably accelerate development and the introduction into series production of functional modules constructed on the basis of MC. A thorough study of the properties of MC makes it possible to avoid errors during planning of apparatus using them and to recognize new possibilities for their use.

1/1

USSR

UDC: 8.74

ANDREYEV, V. L., NAGORSKIY, A. A., SHAPIRO, A. P.

"Modeling the Population of Fish With a Two-Year Life Span and a Single Spawning Period"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works), vyp. 25, Moscow, "Nauka", 1972, pp 167-175 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V603)

Translation: The paper gives some information on construction of models, estimation of parameters, and also on the results of modeling the dynamics of numbers of an industrial breed of fish (the prototype of the models considered is the population of the South Kuril gorbusha [a member of the salmon family]). The algorithms were realized on the "Minsk-22" computer. Authors' abstract.

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1/2 006 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PRODUCTION OF HIGH YIELD SEMICHEMICAL PULPS FOR CORRUGATED PRODUCTS
-U-
AUTHOR--(05)-SHAPIRO, A.R., SHTOFENMAKHER, N.A., ONOKHIN, I.P., PUZYREV,
S.A., TSAL, TS.K.
COUNTRY OF INFO--USSR
SOURCE--ZELLST. PAPIER (LEIPZIG) 1970, 19(4), 107-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--PAPER PRODUCT, INDUSTRIAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/1349

STEP NO--GE/0091/70/019/004/0107/0104

CIRC ACCESSION NO--AP0138359

UNCLASSIFIED

2/2 006

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0138359

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, A LECTURE WITH NO REFS. THE TOPIC
WAS DISCUSSED WITH RESPECT TO THE "PTK" PROCESS. FACILITY:
VNIIB, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 621.396.67:624.97(088.8)

SOKOLOV, A. Ye., USANOV, A. P., SHAPIRO, A. Z., D'YACHKOV, V. K., KUTYAYKIN, V. Ya., MUROKH, G. L., MARYSHKOV, V. M.

"A Device for Suspending the Radiating Element of Rotating Antennas"

USSR Author's Certificate No 262198, filed 20 May 68, published 3 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B77 P)

Translation: This Author's Certificate introduces a device for suspending the radiating element of rotating antennas. The device contains a girder designed for fastening the radiating element, this girder being fastened to the reflector or antenna array by rod supports equipped with hinges. In order to reduce the effect which deformations of the elastic elements have on the electrical parameters of the antenna, the girder is connected to the rod supports through bearings, and to the reflector or antenna array through auxiliary guys, the lines which connect the points of fastening of these guys to the reflector or antenna array and to the girder forming a parallelogram. Two illustrations. Resumé.

1/1

- 15 -

USSR

UDC 621.395.67:624.074

S
SOKOLOV, A. Ye., USANOV, A. P., SHAPIRO, A. Z., D'YACHEKOV, V. K., KUTYAYKIN, V. A.
MUROKH, G. L., NARYSHKOV, V. M.

"A Device for Suspension of the Primary Radiating Element of Rotating Antennas"

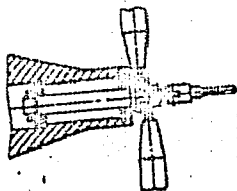
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6,
1970, p 41, patent No 262198, filed 20 May 68

Abstract: This Author's Certificate introduces a device for suspension of the primary radiating element of a rotating antenna. The unit contains a girder designed for holding the radiating element. This girder is fastened to the reflector or antenna array by means of rod supports equipped with hinges. As a distinguishing feature of the patent, the effect which deformations of the elastic elements in the device have on the electrical properties of the antenna is reduced by connecting the girder to the rod supports by means of bearings, and connecting it to the reflector or antenna array by means of additional guys. The connection lines of the points of fastening of the guys to the reflector or antenna array and to the girder form parallelograms.

1/2

USSR

SOKOLOV, A. Ye., et al., Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy,
Tovarnyye Znaki, No 6, 1970, p 41, patent No 262198, filed 20 May 68



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(3)

USSR

UDC 681.178.9

KASHchEYeV, A. M., KISELEV, V. M., LEFYaGIN, Yu. V., NOVIKOV, V. A.,
ROZANOV, Ye. V., ROZENKRANTS, Yu -K. V. and ShAPIRO, B. I.

"A Device for Recording Pulse Signals"

USSR Author's Certificate, Class G Ol d 9/36, G 06 m 3/00, No 334478, filed
25 Dec 70, published 23 May 72 (from RZh-Avtomatika Telemekhanika i Vychislitel'-
naya Tekhnika, No 3, Mar 73, Abstract No 3 A378 P)

Translation: A device is proposed for recording pulse signals, containing
"AND" circuits and an "OR" circuit, the latter attached to a decoder connected
with electromagnetic recording machines. To ensure a quantitative evaluation
of the information recorded over time, a reduction of deviations, and a simpli-
fication of service, the device contains a time code shaper connected directly
and through the control block to distributors attached to the numeric code
sensors, connected in turn to the corresponding AND circuits. The AND circuits
are connected to the OR circuit. The outputs of the time code shaper are con-
nected to the electromagnetic recording machines, and electromagnetic relays
are connected to a pulse group generator. One illustration.

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- 6 -

CSO: 1860 -W

UDC: 537.312.62

USSR

MATVEYEV, I. V., SHAPIRO, B. I., IGLITSYN, M. I., BASHKIROV, Yu. A.

"Investigation of Some Properties of the Mixed State of Superconducting Niobium in Alternating Magnetic Fields"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 2, pp 3-11
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D509)

Translation: The authors present the results of research on determining the configuration of a magnetic field penetrating a superconducting cylinder. The method is developed by Bean in application to determination of the critical current density on the basis of Fourier analysis of the voltage induced in a flip coil containing a specimen placed in a magnetic field. According to this method, the odd harmonics of the induced voltage are related to the critical current density of the specimen j_c . Temperatures close to the critical temperature T_c are used. Curves of the magnetization and induced voltage are plotted for four specimens of niobium single crystals grown by the method of zone refining. Identical values of j_c are found for polished homogeneous specimens both from the magnetization curves

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MATVEYEV, I. V. et. al., Kratkiye soobshch. po fiz., 1971, No 2, pp 3-11
and from Fourier analysis of the induced voltage curves. A difference of
more than an order of magnitude between the j_c values obtained by these
two methods for a specimen with a rough surface is attributed to the
fact that a shallow-penetrating alternating field is sensitive only to
the destroyed layer which gives the true localized critical current density.
A. K.

- END -

- 176 -

1/1

Acc. Nr:

AP0053445

Abstracting Service:
CHEMICAL ABST.

Ref. Code:

4R0366

110555d Reactions of polycyclic ketones. III. Mechanism of action of polycyclic ketones with carboxylic acid chlorides. Dokunikhin, N. S.; Solodar, S. L.; Shapiro, B. I. (Nauch.-Issled. Inst. Org. Poluprod. Krasitel., Moscow, USSR). Zh. Org. Khim. 1970, 6(2), 371-4 (Russ). The reaction of phenalene (I) with AcCl gives acyloxyphenalenyl free radical, detected by EPR spectroscopy. The formation of this free radical led to the postulation of a mechanism for the formation of acyloxypro-pyrene. CPJR

REEL/FRAME
19830470

Acc. Nr.

ATC049881

Abstracting Service:
CHEMICAL ABST 5/70

Ref. Code

4P0020

105739n EPR study of single-electron transfer reactions in a series of polynitro- and halopolynitroalkanes. Shapiro, B. I.; Okhlobystina, L. V.; Khutiretskii, V. M.; Fainzil'berg, A. A.; Svirin, Ya. K. *Inst. Org. Khim. im. Zelinskogo, Moscow, USSR. Dokl. Akad. Nauk SSSR* 1973, 190(1), 151-4 (Phys Chem) (Russ). EPR signals were detected at -30° in the reaction products of 2,4,6-tri-*tert*-butylphenoxyl anion with the indicated substances: $(O_2N)_3C$ (I), $ClC(NO_2)_2$ (II), $FC(NO_2)_2$, and $MeC(NO_2)_2$ (III), as well as $FC(NO_2)_2Cl$, $FC(NO_2)_2F$, $PhC(NO_2)_2F$ (IV), $MeC(NO_2)_2Cl$, $MeC(NO_2)_2F$, and $Me_2C(NO_2)_2$ at room temp. the EPR signal was obtained only from I, II, III, and IV systems. The uv spectra of these were also reported for detection of the polynitro anions; these were absent in cases of $PhC(NO_2)_2^-$ and $MeC(NO_2)_2^-$ only. The results confirmed that the anion-radical mechanism describes the nature of the reaction of the polynitro compds. with the anion shown above.
G. M. Kosolapoff

REEL/FRAME
19801813

UDC: 621.771.061.3

USSR.

SHAPIRO, B. S., Candidate of Technical Sciences

"All-Union Scientific-Engineering Conference on Broadening the Assortment and Improving the Quality of Rolled Metal"

Moscow, Metallurg, No 11, Nov 1970, p 37

Abstract: This conference organized by the Scientific-Engineering Society for Ferrous Metallurgy, was held in Magnitogorsk on 14-16 July 1970. The keynote report, read by V. V. Lempitskiy, member of the Ministry of Ferrous Metallurgy, USSR, noted that the further development of the Soviet economy demanded increased production as well as broadened assortments and improved quality of rolled metals. New rolling mills and improvements in existing ones have been introduced, and some notes are made on the achievements which have taken place in the 1966-1969 period. The experience of the Magnitogorsk Metallurgical Combine shows that, with rational engineering in all branches of metallurgical production, and the efficient use of annealing equipment, good quality rolled metal can be obtained without additional processing adjustments. Short summaries are given of other reports read during the conference, and a list of five resolutions adopted by participating personnel is given.

I/I

1/2 021
TITLE--RELATION BETWEEN THE PARAMETERS OF THE F2 AND F1 LAYERS AND
PREDICTION OF DAYTIME N(H) PROFILES AND H'F CHARACTERISTICS -U-
AUTHOR--SHAPIRO, B.S.
COUNTRY OF INFO--USSR
SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL. 10, NO. 2, 1970, P. 344-346
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--F LAYER, CRITICAL FREQUENCY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAKE--1997/0162

STEP NO--UR/0203/70/010/002/0344/0346

ACCESSION NO--AP0119158
UNCLASSIFIED

PROCESSING DATE--16OCT70

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0119158
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ANALYSIS SHOWING THAT THE OCCURRENCE AND GEOMETRICAL PARAMETERS OF THE F1 LAYER CAN BE RELATED TO THE CRITICAL FREQUENCIES OF THE F1 AND F2 LAYERS BY THE RATIO OF THESE CRITICAL FREQUENCIES. THIS MAKES IT POSSIBLE TO PREDICT THE VALUES OF THE CRITICAL FREQUENCY RATIO FOR WHICH BIFURCATION OF THE F REGION WILL OCCUR AND TO DETERMINE THE CORRESPONDING CHANGES IN THE PARAMETERS OF N(H) AND H'F.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT ZEMNOGO MAGNETIZMA, IONOSFERY I RASPROSTRANENIIA RADIOVOLN, KRASNAYA PAKHRA, USSR.

UNCLASSIFIED

Acc. Nr: **AP0046358**

Ref. Code: **DR0000**

PRIMARY SOURCE: Razdel V, Ionosfernyye Issledovaniya, 1970,
Nr 19, pp **20-40**

B. S. Shapiro Distribution of ionization with height and variations of its parameters from the data of ground vertical sounding.
Methods of calculation of $N(h)$ profiles of ionosphere from measurements of ground vertical sounding are discussed.
Variations of main $N(h)$ parameters of region F under calm and disturbed conditions and connection of $N(h)$ variations with Aeronomic parameters are considered.

1/1

24
12

REEL/FRAME
19781523

USSR

UDC 621.373

SHAPIRO, D. N.

"Problem of Classifying Frequency Synthesizers"

Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. Vyp. 3
(Materials of the Scientific and Technical Conference. Leningrad Electrotechnical
Communications Institute, Vyp. 3), Leningrad, 1970, pp 200-205 (from RZh-Radio-
tekhnika, No 8, Aug 70, Abstract No 8 D327)

Translation: The basic rules of classifying synthesizers are proposed, and
examples are presented to illustrate how to use them. There are two illustra-
tions.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--INFLUENCE OF INTRINSIC CONDUCTIVITY ON THE THERMO ELECTRONIC
PROPERTIES OF BI SUB2 TE SUB3-X SE SUBX SOLID SOLUTIONS -U
AUTHOR--(C4)-GOLTSMAN, B.M., IKONNIKOVA, G.N., KUTASOV, V.A., SHAPIRO,
E.KH.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERG. TELA 1970, 12(5), 1402-9
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--INTRINSIC SEMICONDUCTOR, SEMICONDUCTOR CONDUCTIVITY, SOLID
SOLUTION, THERMAL EMF, FORBIDDEN ZONE WIDTH, FERMI LEVEL, ELECTRON
MOBILITY, BISMUTH COMPOUND, TELLURIDE, SELENIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAPE--3004/C889 STEP NO--UR/0181/70/012/005/1402/1409
CIRC ACCESSION NO--AP0131475
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NGV7C

2/2 026

CIRC ACCESSION NO--AP0131475

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN TERMS OF THE MODEL IN WHICH THE THERMOELEC. FIGURE OF MERIT, Z , IN THE PRESENCE OF INTRINSIC COND. IS DESCRIBED BY A REDUCED WIDTH OF THE FORBIDDEN BAND, η , ϵ , THE POSITION OF THE ELECTRON FERM LEVEL, AND THE MATERIAL PARAMETERS β AND γ (β IS SIMILAR TO CONST. T PRIME 5 OVER 2 (μ SUBN) PRIME 3 OVER 2 μ SUBN OVER X SUBP; γ EQUALS (μ SUBOP OVER μ SUBON) (μ SUBP OVER μ SUBN) PRIME 3 OVER 2 WHERE μ SUBN, μ SUBON, μ SUBP, AND μ SUBOP ARE THE EFFECTIVE MASSES AND MOBILITIES OF ELECTRONS AND HOLES, RESP., AND X SUBP IS THE THERMAL COND. OF THE CRYSTAL LATTICE), CALC. WAS CARRIED OUT FOR A SERIES OF VALUES, β , η , ϵ , AND γ . THE REGION OF THE CHOSEN VALUES OF η , ϵ , β , AND γ INCLUDED EXPTL. VALUES OF THESE PARAMETERS OBSD. IN THE INVESTIGATED SYSTEM OF THE SOLID SOLNS. BI SUB2 TE SUB3-X SE SUBX. FOR X IS GREATER THAN 0.3 (FOR SOLID SOLNS. WITH THE WIDTH OF THE FORBIDDEN BAND E SUBG IS GREATER THAN 0.2 EV, η EQUALS 7.8), THE EFFECT OF INTRINSIC COND. ON Z CAN BE NEGLECTED. DUE TO THIS EFFECT, VARIATION OF γ WITH Z IS PRACTICALLY ABSENT. HOWEVER, FOR BI SUB2 TE SUB3, Z IS ONLY SLIGHTLY SENSITIVE TO VARIATIONS IN γ , DEVIATIONS IN γ BY AS MUCH AS 30PERCENT LEAD TO VARIATION IN Z OF 3.5PERCENT. VALUES WERE DETD. OF THERMAL EMF. AND ELEC. COND. FOR MAX. VALUES OF Z FOR ALL INVESTIGATED COMPS. OF THE SYSTEM BI SUB2 TE SUB3-X SE SUBX.

FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC:543.426:535.853.24

BRAGIN, G. Ya., KARABEGOV, M. A., SHAPIRO, E. Ye.

"Atomic-Fluorescent Spectroscopy"

Optich. i Titrometrich. Analizatory Zhidk. Sred [Optical and Titrometric Analyzers for Liquid Media], Reports of All Union Conference, 1971, Part 1, Tbilisi, 1971, pp 67-73 (translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 2, 1972, Abstract No 2.32.1095 by V. S Krasnova)

Translation: A theoretical foundation is presented for the conditions of application of atomic-fluorescent spectrophotometry (APS) as a method of determination of micro-concentrations of metals in solutions. The thresholds of sensitivity of APS are presented for analysis of metals with various sources of excitation and various atomizers. Monochromators operating in emission spectroscopy in the UV area of the spectrum, can be used as spectrometers in APS. The range of measurements of the APS includes 6 orders of concentrations and extends into the area of concentrations less than 10 mg/l. With low concentrations and constant power of exciter radiation, the relationship between intensity of fluorescence and concentration of atoms being analyzed is directly proportional. 3 figures; 2 tables; 4 biblio refs.

1/1

UDC 539.4:624

USSR

SHAPIRO, G. A., SIMON, Yu. A., ASHKINADZE, N. G., GORLOVA, E. S.,
PARUSHKIN, A. K.

"Experimental Study of Earthquake Resistance of Residential Buildings of
Sawn Limestone on Southern Shore of Crimean Using Vibration Machines"

Proyektir. i Str-vo Zdaniy v Seysmich. R-nakh. USSR i MoldSSR [Planning and
Construction of Buildings in Earthquake Regions of UKSSR and MoldSSR --
Collection of Works], Kishinev, Timpul Press, 1972, pp 117-131, (Translated
from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract No 11 V911).

Translation: Vibration tests and certain additional studies have shown that
large-block construction of large (two-row) sections can cope successfully
with dynamic loads, which, in combination with reinforced concrete walls
in stairwells, assures earthquake resistance of the buildings tested with
a double reserve for level eight loadings.

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1/2 041
TITLE--EXPERIMENTS IN THE APPLICATION OF PROPHYLACTICS AGAINST RADIATION
INJURIES UNDER SIMULATED PROLONGED SPACE FLIGHT CONDITIONS -U-
AUTHOR--(05)--ROGOZKIN, V.D., SBITNEVA, M.F., SHAPIRO, G.A., GVOZDEVA, N.I.,
ZUKHBAYA, T.M.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKAIA BIOLOGIIA I MEDITSINA, VOL 4, MAR.-APR. 1970, P.
20-24
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, PHYSICS

TOPIC TAGS--DOG, GAMMA RADIATION, RADIATION DOSAGE, HEMATOPOIESIS,
RADIATION INJURY, RADIATION PROPHYLAXIS, ANTIRADIATION DRUG, ADENOSINE
TRIPHOSPHATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/1710

STEP NO--UR/0453/70/004/000/0020/0024

ACCESSION NO--AP0138683

UNCLASSIFIED

PROCESSING DATE--27NOV70

UNCLASSIFIED

2/2 041
CIRC ACCESSION NO--AP0138683
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF ONE YEAR
OBSERVATIONS OF RADIATION EFFECTS IN A GROUP OF 54 DOGS EXPOSED TO
CHRONIC GAMMA RADIATION DOSES OF 75 REM-YEAR WITH ADDITIONAL SOLAR FLARE
SIMULATING DOSES OF 50 REM GIVEN 3 TIMES DURING THE YEAR TO A TOTAL OF
225 REM-YEAR. ADENOSINE TRIPHOSPHATE OR AMITETRAVIT (A COMBINATION OF
VITAMINES C, P, BL, AND B6 WITH TRYPTOPHAN AND HISTIDINE) WERE GIVEN TO
THE DOGS AS MEDICATION. A NORMALIZING EFFECT OF THESE PREPARATIONS ON
HEMOPOIESSIS IS ESTABLISHED IN RADIATION EXPOSED DOGS.

UNCLASSIFIED

1/2 021
TITLE--GLUCOCORTICOIDS FUNCTION OF ADRENAL CORTEX IN GUINEA PIGS FREE FROM
GERMS -U-
AUTHOR--SHAPIRO, G.A., CHAKHAVA, O.V., ATAMANOVA O.M.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 140-141
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ADRENAL CORTEX, CORTICOID, GUINEA PIG, GNOTOBIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/0791
CIRC ACCESSION NO--AP0102754
UNCLASSIFIED
PROCESSING DATE--11 SEP 70
STEP NO--JP/0391/70/016/002/0140/0141

UNCLASSIFIED

PROCESSING DATE--11SEP70

2/2 021
CIRC ACCESSION NO--AP0102754
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN GUINEA PIGS FREE FROM GERMS THE
CONCENTRATION OF 11 HYDROXYSTEROIDS IN THE BLOOD WAS INCREASED BY 6.5
TIMES AS COMPARED TO THE CONTROL ANIMALS. GLUCOCORTICOID CONTENT IN
ADRENALS WAS SIMULTANEOUSLY DECREASED. THE INCREASE IN
11-OXYCORTICOSTEROIDS CONCENTRATION IN THE BLOOD OF ANIMALS FREE FROM
GERMS IS CONDITIONED BY FREE PHYSIOLOGICALLY ACTIVE FRACTIONS AND
TESTIFIES TO THE ELEVATION IN FUNCTIONAL ACTIVITY OF THE SYSTEM:
HYPOPHYSIS ADRENAL CORTEX.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--DYNAMIC LOADING OF POLYMER MATERIALS -U-
AUTHOR--(03)-KOKOSHVILI, S.M., TAMUZS, V., SHAPIRO, G.S.
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(2), 326-38
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS
TOPIC TAGS--DYNAMIC STRESS, POLYMER, PLASTIC MECHANICAL PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0900 STEP NO--UR/0374/70/006/002/0326/0338
CIRC ACCESSION NO--AP0104629
UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW WITH 80 REFS. DESCRIBING
TEST METHODS AND THE THEORETICAL STUDIES DEALING WITH THE MECH.
PROPERTIES AND THE PROPAGATION OF DYNAMIC STRESS WAVES IN POLYMERS.
FACILITY: INST. MEKH. POLIM., RIGA, USSR.

UNCLASSIFIED

USSR

UDC 581.1:595.7

SLEPYAN, E. I., VILKOVA, N. A., and SHAPIRO, I. D., Botanical Institute imeni V. L. Komarov, Academy of Sciences USSR

"Pathological Changes in the Structure of Developing Grains of *Triticum aestivum* Infested With *Eurygaster integriceps*, In Connection With Special Features of Its Nutritional Regimen in the Process of Ontogenesis"

Moscow, *Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya*, No 2, Mar/Apr 72, pp 258-262

Abstract: The stink bug, *Eurygaster integriceps*, is one of the most dangerous pests of wheat. It damages the husk, endosperm, and starch; causes anomalies in the nuclei; and produces chemical damage by the action of its abenteric enzymes. The worst damage occurs if the wheat is infested while it is still in the early stages of development, when the following pathological changes may be observed in the five or six layers of cells immediately surrounding the puncture made by the insect: 1) starch is not formed in the cells of the first three layers, and part of these cells hypertrophy, which leads to anisocytosis; 2) the cells of these layers are characterized by saturation of the cytoplasm and insignificant vacuolization; 3) the nuclei of the cells deprived of starch and of the cells with saturated cytoplasm are deformed; they assume

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USSR

SLEPYAN, E. I., et al., Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 2, Mar/Apr 72, pp 258-262

a lobe-shaped form and are often fragmented and hypertrophied; 4) the percentage of fine-grained starch in the cells of the third to fifth layers increases, thus destroying the endosperm mosaic characteristic of this kind of wheat.

2/2

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1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DEPENDENCE OF CORPUSCULAR RADIATION INTENSITY IN THE UPPER
ATMOSPHERE ON SOLAR ACTIVITY -U-
AUTHOR-(04)-TULINOV, V.F., MOYSEYEV, YU.N, SHAPIRO, I.G., ULANOVA, L.A.
COUNTRY OF INFO--USSR
SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAR-APR. 1970, P 307-309
DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--SOLAR ACTIVITY, RADIATION INTENSITY, SOLAR CORPUSCULAR
RADIATION, UPPER ATMOSPHERE, GEIGER COUNTER, GEOMAGNETIC DISTURBANCE,
ATMOSPHERIC SOUNDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1994/1762

STEP NO--UR/0293/70/008/000/0307/0309

CIRC ACCESSION NO--AP0115591

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0115591

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF UPPER ATMOSPHERIC
SOUNDINGS IN WHICH ENDWINDOW GEIGER COUNTER WERE MOUNTED ON THE ROCKET

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DOUBLE LABELING OF CELLS WITH PRIME3 H, THYMIDINE AT VARIOUS STAGES
OF THE MITOTIC CYCLE -U-
AUTHOR-(02)-LUBENNIKOVA, E.I., SHAPIRO, I.M.
COUNTRY OF INFO--USSR
SOURCE--TSITOLOGIYA 1970, 12(1), 133-6
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TRITIUM, CHEMICAL LABELLING, TISSUE CULTURE, HAMSTER, CULTURE
MEDIUM, AUTORADIOGRAPHY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/0336 STEP NO--UR/9053/70/012/001/0133/0136
CIRC ACCESSION NO--AP0108634
UNCLASSIFIED

2/2 027

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0108634

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CELL CULTURE OF CHINESE HAMSTER FIBROBLAST STRAIN B11 D11 FAF-28, CLONE 432 GROWN IN MEDIUM 199 CONTG. 15PERCENT BOVINE SERUM IN AN ATM. OF 6PERCENT CO SUB2 AT 37DEGREES WAS LABELED BY A 15 MIN PULSE OF THYMIDINE PRIME3 H, (0.5-1.0 MU CL-ML). AFTER WASHING WITH THE MEDIUM CONTG. 10 MU G NONLABELED THYMIDINE-ML, THE CELLS WERE CULTIVATED IN THE MEDIUM WITH THYMIDINE PRIME3 H, 10 NEGATIVE PRIME3 MU CI-ML. IT WAS FOUND AUTORADIOGRAPHICALLY THAT THE CELLS WHICH WERE IN THE G SUB1, S, AND G SUB2 PHASES AT THE TIME OF PULSE LABELING COULD BE DISTINGUISHED IN METAPHASE AS LIGHTLY LABELED, HEAVILY LABELED, AND UNLABELED CELLS, RESP. FACILITY: INST. DEVELOP. BIOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 616-057-084:629.113

MAL'KOVETS, M. V., SHAPIRO, I. P., and MASLOVSKAYA, V. P.

"Prophylaxis of Occupational Diseases at the Minsk Automobile Plant"

Minsk, Zdravookhraneniye Belorussii, Vol 17, No 5, May 71, pp 48-51

Abstract: Occupational diseases at the Minsk Automobile Plant during 1964-1969 were studied. The incidence of these diseases decreased from 1964 to 1966 and then apparently increased from 1967 to 1969. The apparent increase was due to a more thorough medical examination of the employees. In 1969 a renewed downward trend was observed. In 1964 there was a high incidence of pneumoconiosis (silicosis), a condition which was not adequately diagnosed prior to 1964. The frequency of occurrence of pneumoconiosis decreased in 1964-1968. The rise in the curve of occupational disease incidence during 1967-68 was due to an increasing number of detected cases of neuritis of auditory nerves and vibration sickness that were caused by extensive use of pneumatic equipment. Other occupational diseases including industrial dermatitis, bronchial asthma, and neuromyositis were encountered rarely. Occupational diseases occurred most frequently among workers at the foundry shops. Because of improved working conditions at these shops, the mean length of time after the start of employment within which vibration sickness and neuritis of auditory nerves

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MAL'KOVETS, M. V., et al., Zdravookhraneniye Belorussii, Vol 17, No 5, May 71, pp 48-51

developed increased from 8.8 to 11.6 and 11.2 to 14.6 yrs, respectively, from 1964-1966 to 1967-1969. In 1968-1969 measures to reduce the incidence of these two diseases were taken which included replacement of pneumatic with electrically driven and hydraulic tools in the section of chassis assembling and on the main assembly line. Work is being done on the installation of noisy equipment on springs supported on foundations that compensate for vibrations and on the replacement of such equipment with noiseless tools and machines.

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USSR

UDC: 539.125

SHAPIRO, I. S.

"Interaction of Slow Antinucleons With Nucleons and Nuclei"

Moscow, Uspekhi Fizicheskikh Nauk, No 3, 1973, pp 431-454

Abstract: This review covers the work done so far on collisions of nonrelativistic antinucleons (\bar{N}) and nucleons (N). By limiting his examination to low-energy situations, the author can use the potential approach to the NN interaction without, for the moment, considering the problem of annihilation. Discussing the interaction, in turn, makes possible the theoretical clarification of the characteristics of systems containing nucleons and antinucleons. In this connection, the question of the existence of quasi-nuclear bonded NN states is of interest. It is shown that many such states should be expected, since the forces of attraction in a two-nucleon system are comparatively weak and only one bonded state -- the deuteron -- exists. Other subjects discussed are annihilation, quasi-nuclear mesons, and the generation of these mesons in slow antinucleon beams. The author concludes that clarification of the interaction of nonrelativistic nucleons and antinucleons is of immediate interest in the theory of ordinary nuclei

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UDC: 539.125

SHAPIRO, I. S., Uspekhi fizicheskikh nauk, No 3, 1973, pp 431-454

as well as for establishing the physical nature of heavy meson resonances, which is one of the important problems in modern elementary particle physics. He thanks L. N. Bogdanova, O. D. Dal'-karov, and B. O. Kerbikov for their comments and assistance, and L. B. Okun' for his constructive critical comments.

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USSR

DAL'KAROV, O. D., SAMOYLOV, V. M., SHAPIRO, I. S., Institute of Theoretical and Experimental Physics, State Committee on the Use of Atomic Energy

"The Spectrum of γ -Quanta Emitted During Annihilation of Stopped Antiprotons in Hydrogen"

Moscow, Yadernaya Fizika, Vol 17, No 5, May 73, pp 1084-1089

Abstract: The authors calculate the probabilities of radiation transitions from the 1S-state of a pp-atom to a bound quasinuclear state of a nucleon and an antinucleon. It is shown that the spectrum of gamma quanta with capture of antiprotons in hydrogen in the 0-600-mev energy range should consist of several lines 10-50 Mev wide with an intensity of one thousandth to one hundredth of the total probability of annihilation. The authors thank L. N. Bogdanova for constructive criticism.

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USSR

BIRGER, YE. S., KERBIKOV, B. O., KONYUKHOVA, N. B., and SHAPIRO, I. S., Institute of Theoretical and Experimental Physics of the State Committee on the Use of Atomic Energy (BIRGER, YE. S., now at Institute of Control Problems, and KONYUKHOVA, N. B., at Computer Center of the Academy of Sciences USSR)

"Bound Quasinuclear States of $2N2\bar{N}$ System"

Moscow, Yadernaya Fizika, Vol 17, No 1, 1973, pp 178-185

Abstract: The article shows that in the X-region there can be quasinuclear mesons which represent bound states of two nucleons and two antinucleons ($2N2\bar{N}$). The characteristic qualitative peculiarities of the bound states in the $2N2\bar{N}$ system are as follows:

1) The isospins of the four-particle mesons may reach values of $I=2$. Experimental data fail to contradict the presence of doubly charged mesons in the X-region;

2) The partial widths $\Gamma_{N\bar{N}}$ for four-particle meson decay over the $N\bar{N}$ channel should be much less than the corresponding widths of the

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USSR

BIRGER, YE. S., et al., Yadernaya Fizika, Vol 17, No 1, 1973, pp 178-185

quasinuclear two-particle resonances $\bar{N}N$. Therefore, the $2N2\bar{N}$ mesons can hardly appear as resonances in the antinucleon-nucleon scattering cross-section;

3) The cross-section for the generation of $2N2\bar{N}$ mesons in processes of the type $\bar{N}+N \rightarrow X+N$ should, beginning with certain values, undergo a sharp exponential drop due to the reduced probability of the production of a correlated group from four particles with nonrelativistic relative velocities.

The mass and annihilation width spectrum is obtained for states with the quantum numbers $1^G(J^P)=2^+(4^+)$. One of the levels found has a width of 34 Mev and hence should be observed experimentally as a doubly charged meson in the X-region.

The authors thank O. D. DAL'KAROV and V. D. EFROS for useful comments.

USSR

SHAPIRO, I. S., Institute of Theoretical and Experimental Physics of the
~~State~~ Committee on the Use of Atomic Energy

"Quantum Theory Without the Superposition Principle"

Moscow, Yadernaya Fizika, Vol 16, No 6, 1972, pp 1318-1328

Abstract: The article considers the question of the acceptability of a quantum theory without the superposition principle from a physical standpoint in connection with the problem of "missing" $K_L \rightarrow 2\mu$ decays: i.e., the possibility of a probabilistic interpretation and the presence of conserved physical quantities due to the symmetry properties of space-time. It is shown that there exists, in theory, without the superposition principle, an S-matrix which is nonunitary but which assures the "conservation of probability." Conserved physical quantities, particularly energy and momentum, are obtained. A general method is indicated for the formulation of nonlinear equations for the quantum field state vector. Thus, it is shown that it is possible to construct a quantum theory without the superposition principle at the stage of the formulation and physical interpretation of the fundamental equations.

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USSR

SHAPIRO, I. S., Yadernaya Fizika, Vol 16, No 6, 1972, pp 1318-1328

The author thanks I. YU. KOBZAREV and L. B. OKUN' for a number of useful discussions; V. B. BERESTETSKIY, M. S. MARINOV, V. S. POPOV, and V. V. SUDAKOV for constructive criticism; B. L. VORONOV, G. A. LOBOV, D. A. KIRZHNITS, A. M. PERELOMOV, V. YA. FAYNBERG, and YE. L. FEYNBERG for valuable comments; and V. A. CHECHIN for showing the author the manuscript of his article.

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USSR

UDC: None

KERBIKOV, B. O., MANDEL'TSVEYG, V. B., and SHAPIRO, T. S.

"Charge Variables for Describing Systems of Particles and Anti-Particles"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki,
vol 62, No 6, 1972, pp 2013-2018

Abstract: It is shown that to set up the wave functions of systems consisting of nonrelativistic particles and anti-particles it is convenient to introduce charge variables. These make possible the evaluation of the G-parity of a system consisting of an even number of nucleons and anti-nucleons. It is shown that the G-parity of such a multiparticle system is not connected with the kinematic quantities of orbital moments, spins, and isospins but is an independent, exact quantum number defined only by the permutational symmetry of the wave function in terms of the charge variables. The authors express their gratitude to V. A. Karmanov, L. A. Kondratyuk, and M. S. Marinov for their comments.

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USSR

DAL'KAROV, O. D., MANDEL'TSVEYG, V. B., and SHAPIRO, I. S. (Institute of Theoretical and Experimental Physics, State Committee for the Use of Atomic Energy)

"Generation Cross Sections of Quasinuclear Meson Resonances"

Moscow, Yadernaya Fizika, Vol 13, No 2, 1971, pp 332-335

Abstract: The differential production cross sections of heavy quasinuclear meson resonances corresponding to the stripping and capture mechanisms are calculated for the reactions: $\bar{p} + d \rightarrow N + X$ (I) and $d + p \rightarrow \bar{N} + X$ (II). The development of the differential cross sections as functions of applied momentum is found to depend essentially on the orbital moment relative to motion of N and \bar{N} , components of the quasinuclear meson. The full cross section $\sigma \approx 1$ -200 microbarns. Evaluations are presented for the production cross section of quasinuclear mesons in substitution reactions. The differential and complete production cross sections of the four quasinuclear mesons are calculated, with kinetic energies of antiprotons of 0.4 and 10 KeV, in reaction (I). The corresponding cross sections in reaction (II) are found to be on the same order of magnitude.

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USSR

DAL'KAROV, O. D., MANDEL'STVEYG, V. B., and SHAPIRO, I. S., Institute of Theoretical and Experimental Physics

"Possible Quasinuclear Nature of Heavy Meson Resonances"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 59, No 4, Oct 70, pp 1363-1367

Abstract: The article studies the possibility of the existence of nonrelativistic bound states in the NN system. The authors' starting point is the potential correctly describing low-energy NN scattering. The static variant of the Bryan-Phillips potential is used. It is shown that the potential interaction of nucleon and antinucleon at nonrelativistic energies leads to the existence of a number of nuclear-like bound states which manifest themselves as heavy mesonic resonances (with masses close to the double nucleon mass). The authors thank L. N. BOGDANOVA, YA. B. ZEL'DOVICH, A. P. SOKOLOV and K. A. TER-MARTIROSYAN for useful discussion, as well as N. YANIYEVA, A. V.

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USSR

DAL'KAROV, O. D., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 59, No 4, Oct 70, pp 1363-1367

GASPARYAN, A. L. LYUBIMOV and A. N. NIKITIN for their hospitality and assistance in performing numerical calculations on the computer of the Joint Institute of Nuclear Research.

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1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--NONRELATIVISTIC BOUND STATES IN THE NUCLEON ANTINUCLEON SYSTEM -U-

AUTHOR--(03)-DALKAROV, O.D., MANDELTSVEYG, V.B., SHAPIRO, I.S.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(4), 889-95

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NUCLEON INTERACTION, ANTIPARTICLE, NUCLEAR ENERGY LEVEL,
NUCLEAR RESONANCE, EXCITED STATE, EXCITATION ENERGY, NUCLEAR ISOBAR,
MESON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3007/1079

STEP NO--UR/0367/70/011/004/0889/0895

CIRC ACCESSION NO--AP0136499

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE MASS REGION 1580-1880 MEV, 7 MESON RESONANCES WITH THE APPROX. WIDTH OF 40-110 MEV AND A MEAN DISTANCE OF LESS THAN OR EQUAL TO 40 MEV BETWEEN THEM WERE LOCATED REPRESENTING THE QUASI NUCLEAR BOUND STATES OF THE N-BAR N SYSTEM. THE QUANTUM NOS. OF 4 OF THEM WERE DETD. TO BE 0 MINUS MINUS, 0 MINUS PLUS, 1 MINUS MINUS, AND 1 MINUS PLUS. THE PERIPHERAL INTERACTION OF AN BAR N WITH 2N SHOULD LEAD TO THE EXISTENCE OF A SERIES OF BARYON RESONANCES AT 2500-800 MEV AND THE MULTINUCLEAR RESONANCES OF THE SAME TYPE SHOULD RESULT AS THE EXCITED STATES ON NUCLEI WITH THE EXCITATION ENERGY OF 1.5-2 GEV. IN THIS WAY, THE LEVEL SPECTRUM OF NUCLEI EXTENDED TO THE EXCITATION ENERGY OF SEVERAL GEV AND COULD BE CHARACTERIZED IN THIS SERIES: THE ORDINARY NUCLEUS LEVELS WERE FOLLOWED BY LEVELS WITH THE EXCITATION ENERGY OF SEVERAL HUNDREDS OF MEV CORRESPONDING TO THE EXISTENCE OF NUCLEON ISOBARS AND AT SIMILAR TO 2 GEV THE ABOVE STUDIED LEVELS STARTED.

FACILITY: INST. TEOR. EKSP. FIZ., MOSCOW, USSR.

UNCLASSIFIED

USSR

SHAPIRO, I. S., Institute of Theoretical and Experimental Physics, State Committee
on the Use of Atomic Energy, USSR

"Regge Trajectories and Nuclear Structure"

Moscow, Yadernaya Fizika, Vol 12, No 1, 1970, pp 53-60

Abstract: Regge trajectories are compared in essentially multiparticle (collective) and shell models. It is shown, first of all, that for essentially multiparticle nonrelativistic systems Regge trajectories ascend at least all the way to the threshold of total decay. It is shown that the existence of analog resonances is difficult to reconcile with the course of shell trajectories. Consideration is given to the question of the manner in which the properties of Regge trajectories may be used for clarifying the nature of the energy spectrum of real nuclei. The question of rotationlike spectra is discussed on the basis of the formulas obtained for nuclear trajectories. The creation of a new classification of data on nuclear spectroscopy for the purpose of restoring Regge trajectories is proposed. A circumstance hindering the completion of such a program is the large number of levels; however, the obstacle is surmountable since, as is shown in the article, the nuclear trajectories of bound and analog states are approximated by comparatively simple relationships.

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Forming

USSR

UDC 621.791.948

VERETNIK, L. D., PODOL'SKIY, B. A., Kharkov; and SHAPIRO, I. S., Moscow

"Plasma-Arc Cutting of Aluminum Casting Heads"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 70, pp 64-65

Abstract: The amount of labor expended in separating aluminum casting heads can be reduced considerably by plasma-arc cutting. Special equipment of the OPR-6 type was used with the RPR-6 manual plasma-arc cutter to produce casting heads of complex configuration. A sample is shown in a photograph. Details of the process are given. A special coating was developed to keep the surface of the head from adhering to the poured metal. A table is given which gives the gas (argon and hydrogen) flow rates for the arc and the current required for cutting various thicknesses of the aluminum heads.

VAGNER, G.F.

Colorimetric determination of the complement energy of the blood.
Lab. delo 8(i.e.9) no.1:44-46 Ja '63. (MIRA 16:5)

1. Pervaya gorodskaya Bol'nitsa (glavnyy vrach I.V.Shapiro),
Novokuybyshevsk.
(COMPLEMENTS (IMMUNITY)) (COLORIMETRY)

SHAPIRO, I.V.

RUDOL, B.D.

Use of cortin in arterial hypotension. Klin.med. 39 no.1:76-78
Ja '61. (MIRA 14:1)

1. Iz Novokuybyshevskoy gorodskoy bol'nitsy (glavnyy vrach
I.V. Shapiro, nauchnyy rukovoditel' - prof. N.Ye. Kavetskiy).
(HYPOTENSION) (ADRENOCORTICAL HORMONES)

RUDOLPH, B.D.

Some etiological factors in hypotension. Kardiologiya 4 no.6:77-81
N-D 1984. (MIRA 18:8)

1. Is Novokuybyshevskiy gorodskoy bol'nitsy Nr. 1 (g'lavnyy vrach
I.L.Shapiga; nauchnyy rukovoditel' - zaslužennyy deyatel' nauki
RSFSR prof. N.Ye.Kavetskiy).

USSR

UDC 537.533.2+537.534

BORISOV, V. L., SHAPIRO, I. YA.

"Secondary Emission Properties of Layers of Magnesium Oxide Obtained With the Aid of an Electron Beam"

Tr. Leningr. politekhn. in-ta (Works of Leningrad Polytechnical Institute), 1970, No 311, pp 20-24 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12Zh657)

Translation: Secondary emission properties of thick (up to 4μ) films of MgO were studied as they depended on preparation conditions. The MgO was evaporated with an electron beam of high intensity. It was shown that the coefficient of secondary electron emission (σ) could change greatly, depending on the temperature of the metal substrate at the time of deposition of the film. A correlation was established between the optical transparency of the layers and the value of σ which is apparently caused by the dependence of the optical and secondary emission properties of the films on the concentration of defects in the crystalline structure. Authors abstract.

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USSR

UDC 681.332.65

SHAPIRO, L. I.

"Device for Decoding Arithmetic Binary Codes"

USSR Author's Certificate No 263274, filed 24 Jun 68, published 16 Sep 70
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 6,
Jun 71, Abstract No 6 B202 P)

Translation: The proposed device pertains to computer engineering. Devices are known for decoding binary codes containing logic circuits, a control circuit, an adder, gates, and registers. The proposed device differs from the well-known ones in that the gates for recording the groups of bits of the decoded number are connected with respect to output via the storage register for the arithmetic binary code and decoded number, and the first gates for reading groups of bits of decoded numbers are connected to the second input of the adder. The second output of the adder (via the logical circuit for determining the codes of the groups of bits of the decoded number), the gates, and the register for sequential storage of the codes of the bit groups of the number are connected to the second inputs of the gates for recording the groups of bits of the decoded number and to the second input of 1/2

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each of the second group of gates for reading the bit groups of the decoded number. The third input of the adder is connected to the output of the second gate for reading the bit groups of the decoded number. This permits an increase in speed of the device. There is 1 illustration.

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Soviet Inventions Illustrated, Section I Electrical, Derwent,

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242973 MAGNETIC MEMORY SYSTEM has memory cells (1), coordinates X (2) and Y (3), adder (4) and one of its input (5) is connected to coordinates (X) the other (6) to coordinates (7). When the memory system is interrogated, the output appears at (5) & (6).

In fig. (2) the function of adder taken a magnetic core in which in opposition are passed the excitation coordinates (5) & (6). The error signal is formed in the winding (7) which is passed to the fault fixing point in the path of the address.

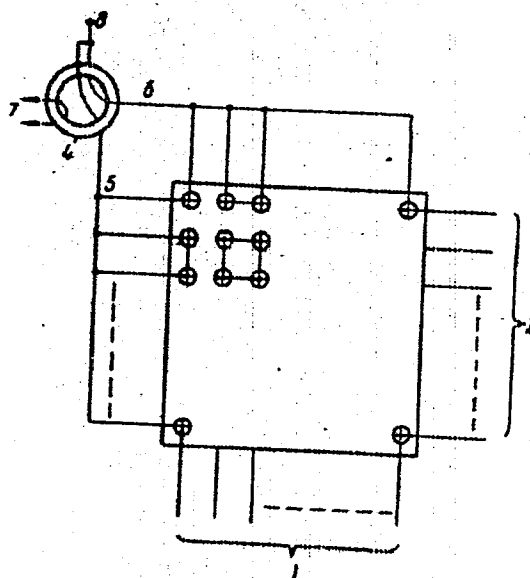
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UDC: 533.9.082.5

IGNATOV, A. B., KOMISSAROVA, I. I., OSTROVSKAYA, G. V., and
SHAPIRO, L. L.

"Double-Wavelength, Single-Exposure Holographic Plasma Interferometry"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, vol. 41, No. 2, 1971,
pp 417-423

Abstract: This paper is connected with an article written by the third-named of the authors above and published in the same journal (vol. 40, No. 11, 1970). In this earlier article the author proposed a method of double-wavelength, single-exposure holographic interferometry in which the form and position of the interference bands are determined only by the dispersion characteristics of the investigated object. Essentially, this method involves two wavelengths, one of which is half the other, radiated by a hologram of a phased object on photomaterial with a light transmissivity which is a non-linear function of the illumination on it. In the present paper,

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IGNATOV, A. B., et al, Zhurnal Tekhnicheskoy Fiziki, Vol. 41, No. 2, 1971,
pp 417-423

a closer and more detailed look is taken at this method, and a description is given of the first attempt to use it for interferometric investigation of a plasma. The authors found that dispersion interferometry gives results which are inferior to those of their method. They are with the A. F. Ioffe Physico-Technical Institute of Leningrad.

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UDC 621.221.003.1:551.48

AVAKYAN, A. B., SHARAPOV, V. A., SHAPIRO, L. N.

"Requirements of Water Conservancy Branches for Flash and Level Modes and Recommendations with Respect to Improving the All-Around Use of Reservoirs"

Tr. koordinats. soveshchaniy po gidrotekhn (Works of the Coordinating Conferences on Hydroengineering), No 59, 1970 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 D57)

Translation: The generalized requirements of each branch with respect to level conditions of reservoir operation and necessary flashes from it are listed in detail for the basic branches of water conservancy (power engineering, agriculture, water transportation and logging), the fishing industry, water supplies and sewage). The requirements of other branches are briefly described. The contradictory nature of the requirements of the various branches is noted. This leads to incomplete satisfaction of them. Optimization of the operating conditions of the hydroengineering complex is complicated by the absence of a method of estimating the national economic effectiveness of various conditions of operation of it and absence of a number of branch procedures. However, this does not exclude the possibility of development and implementation of a number of measures to improve the all-around use of water resources. A list of measures is proposed realization of which must be provided for in projected plans and national economic plans simultaneously with the construction of the